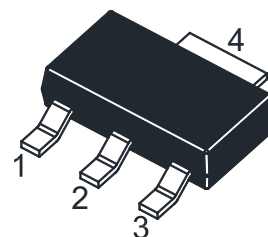


## BCP56Q

### NPN Silicon Epitaxial Planar Transistor



1.Base 2.Collector 3.Emitter 4. Collector  
SOT-223 Plastic Package

#### Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

| Parameter                                         | Symbol          | Value         | Unit               |
|---------------------------------------------------|-----------------|---------------|--------------------|
| Collector Base Voltage                            | $V_{CBO}$       | 100           | V                  |
| Collector Emitter Voltage                         | $V_{CEO}$       | 80            | V                  |
| Emitter Base Voltage                              | $V_{EBO}$       | 5             | V                  |
| Collector Current                                 | $I_C$           | 1             | A                  |
| Peak Collector Current                            | $I_{CM}$        | 1.5           | A                  |
| Peak Base Current                                 | $I_{BM}$        | 0.2           | A                  |
| Total Power Dissipation                           | $P_{tot}$       | 1.33          | W                  |
| Thermal Resistance Junction Ambient <sup>1)</sup> | $R_{\theta JA}$ | 94            | $^\circ\text{C/W}$ |
| Junction Temperature                              | $T_J$           | 150           | $^\circ\text{C}$   |
| Storage Temperature Range                         | $T_{stg}$       | - 65 to + 150 | $^\circ\text{C}$   |

<sup>1)</sup> Device mounted on FR-4 substrate PC board, 2oz copper, with 1-inch square copper plate

#### Characteristics at $T_a = 25^\circ\text{C}$

| Parameter                                                                                      | Symbol        | Min. | Typ. | Max. | Unit |
|------------------------------------------------------------------------------------------------|---------------|------|------|------|------|
| DC Current Gain                                                                                |               |      |      |      |      |
| at $V_{CE} = 2\text{ V}$ , $I_C = 5\text{ mA}$                                                 | $h_{FE}$      | 25   | -    | -    | -    |
| at $V_{CE} = 2\text{ V}$ , $I_C = 500\text{ mA}$                                               | $h_{FE}$      | 25   | -    | -    | -    |
| at $V_{CE} = 2\text{ V}$ , $I_C = 150\text{ mA}$                                               | $h_{FE}$      | 63   | -    | 160  | -    |
|                                                                                                | $h_{FE}$      | 100  | -    | 250  | -    |
| Collector Base Cutoff Current<br>at $V_{CB} = 30\text{ V}$                                     | $I_{CBO}$     | -    | -    | 100  | nA   |
| Emitter Base Cutoff Current<br>at $V_{EB} = 5\text{ V}$                                        | $I_{EBO}$     | -    | -    | 100  | nA   |
| Collector Emitter Saturation Voltage<br>at $I_C = 0.5\text{ A}$ , $I_B = 50\text{ mA}$         | $V_{CE(sat)}$ | -    | -    | 500  | mV   |
| Base Emitter Voltage<br>at $V_{CE} = 2\text{ V}$ , $I_C = 0.5\text{ A}$                        | $V_{BE}$      | -    | -    | 1    | V    |
| Transition Frequency<br>at $V_{CE} = 5\text{ V}$ , $I_C = 10\text{ mA}$ , $f = 100\text{ MHz}$ | $f_T$         | -    | 130  | -    | MHz  |

## Electrical Characteristics Curves

Fig 1. DC Current Gain vs. Collector Current

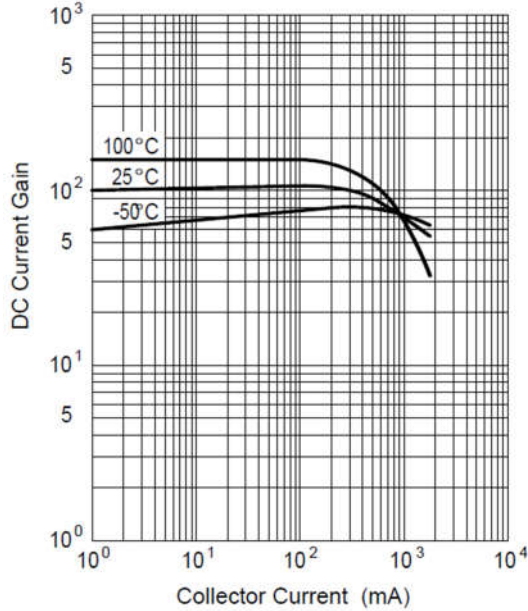


Fig 2. Collector Cutoff Current

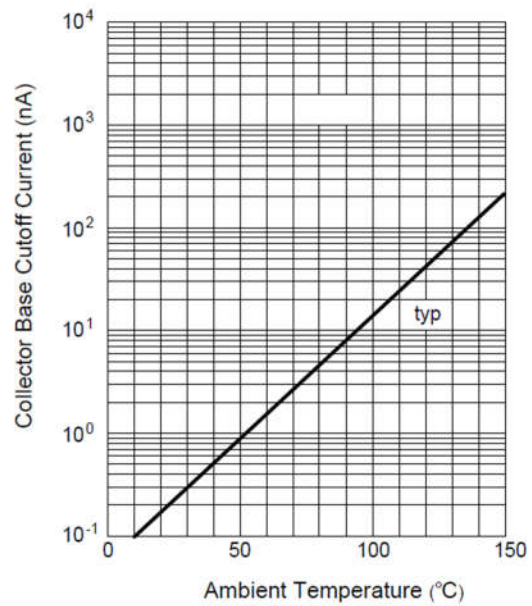


Fig 3. V<sub>BE(ON)</sub> vs. Collector Current

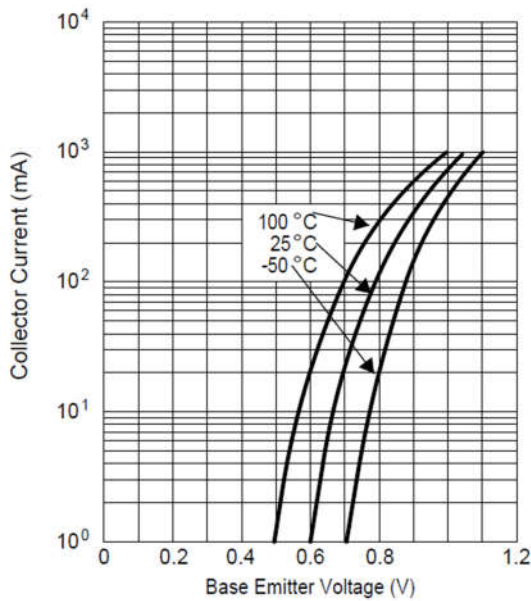
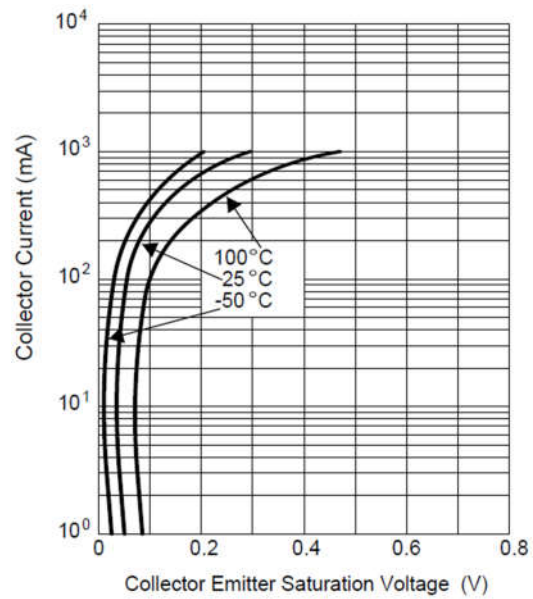


Fig 4. V<sub>CE(sat)</sub> vs. Collector Current

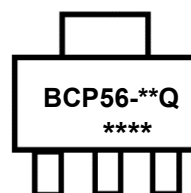


### Marking information

" BCP56-\*\*Q " = Part No. (" \* " = HFE grouping Code)

" \*\*\*\* " = Date Code Marking

Font type: Arial



# Package Outline (Dimensions in mm)

SOT-223

